PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

BRITISH
COLUMBIA

Wetlands Enhancement, Tutu/Mugaha Nesting Islands, 1991

F. B. Corbould
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PWFWCP Report No. 10

The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

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Author(s): Fraser B. Corbould[1]
Address(es): [1] Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave., 3rd Floor Prince George, B.C. V2L 3H9

WILLISTON WILDLIFE PROJECT REPORT

PROJECT DATE: August 20th & 21st, 1991

PROJECT TYPE: Installation of artificial nesting islands for geese

PROJECT LOCATION: Islands were installed at four sites within the Tutu - Mugaha study area north of Mackenzie; Tutu B, Tutu Bay, Mugaha A and Mugaha G (see map).

PROJECT DETAILS:

The placement of nesting islands will provide a stable nesting site that adjusts to the fluctuating water levels caused by the Williston Lake Reservoir and/or by natural filling (eg. snow melt, inlet creek, ground seepage) and draining (eg. outlet creek, evaporation, ground seepage). Isolated from the shoreline the islands also provide protection from nest predators.

Island LOCATION	ISLAND TYPE	ANCHOR SYSTEM	DEPTH* (m)	pH	ALKALINITY (mg/L)	HARDNESS (mg/L)
Tutu B	PVC	single	1.5	8.2	102.6	85.5
Tutu Bay	wood	pulley	12.5	7.7	85.5	85.5
Mugaha A	wood	double	3.6	9.0	68.4	51.3
Mugaha G	PVC	single	5.0	8.2	119.7	119.7

* Depths are not absolute due to water level fluctuations. Williston Lake was at 668.75 m when depths measured.

PVC islands (McEneaney, 1988) were anchored into position by a single 10 gallon bucket of cement (80 - 100 lbs) attached to the island's centre span. Nest material for the island consisted of cattails. The initial layer of cattails was woven into the wire mesh that encases the plastic piping to form a nesting base whereas the remaining cattails were randomly placed on top to conceal the PVC frame and provide sufficient nesting material.

The wooden island at Mugaha A was anchored according to Ducks Unlimited's (1990) specifications for nesting island platforms. DU's design involved a single 10 gallon bucket attached to each of the two kitty-cornered eye-bolts. The wooden island installed at Tutu Bay required a pulley anchoring system to offset the great differences in water levels that occur; water levels fluctuate as much as 10 m in Tutu Bay annually. The pulley system implemented here involved two 10 gallon buckets

that represented the main anchor connected via a 3" diameter pulley to a single 40 pound cement block that functioned as a counterweight; the island could therefore rise or fall dependant on the water level. The pulley system was also employed to reduce or eliminate the slack in the line at lower water levels (ie. spring breeding) so that the island would not become beached and accessible to predators. Unlike the PVC islands, the wooden islands required approximately 10 cm of top soil seeded with a grass mix and fertilizer. This method will hopefully provide a perpetual source of nesting material and cover.

PROJECT COST: (approximate)

Nesting islands (3)*	$1050
Casual labour (2 days)	$ 230
Travel expenses	$ 175
TOTAL	$1455

* The fourth island was donated by Ducks Unlimited.

PROJECT MONITORING:

- monitor the islands, especially the Tutu Bay island, in the spring of 1992 to ensure ice break-up has not adversely affected their position and/or structural condition.
- monitor all islands for geese or duck use and identify the island type (wood, PVC) most suitable for implementation in future projects.

RECOMMENDATIONS:

- if the islands are utilized by geese, additional islands should be installed at Tutu Bay and possibly at Tutu B and Mugaha G. Further, islands could be placed on lakes that are suitable between Tutu and Mugaha bays. Measures to ensure suitable foraging areas (eg. burning, seeding) should also be incorporated into the projects.
- projects designed for other waterfowl species should be undertaken to enhance their habitat in order to provide species diversity and recreational opportunities in the area.
- PVC islands should be utilized for less accessible areas. Their lighter weight along with the use of one anchor and site vegetation (eg. cattails, sedges, grasses) for nesting material allows the PVC island to be more versatile. However, one drawback may be its structural strength.
- sufficient and suitable nesting material should be maintained on the islands to encourage waterfowl use. The involvement of the Mackenzie Fish and Game Association, Mackenzie-McLeod Lake Trappers Association or the local School District may provide the help required to maintain the islands.